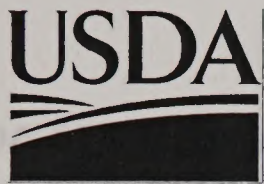


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CURRENT SERIAL ACQUISITION
ACQ/SERIALS BRANCH

Items of Interest in Seed Control

United States
Department of
Agriculture

Marketing and
Regulatory
Programs

Agricultural
Marketing
Service

Livestock and Seed
Program

Winter 2001

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Seed Regulatory and Testing Branch
Room 209, Building 306, BARC-East
Beltsville, Maryland 20705-2325
Regulatory: 301-504-9430; Fax 301-504-8098
Testing: 301-504-8089; Fax 301-504-8098
<http://www.ams.usda.gov/lsg/seed/ls-sd.htm>

FLORIDA SEED TECHNICAL COUNCIL MEETING

Seed Regulatory and Testing Branch (SRTB) Chief Richard Payne attended a meeting of the Florida Seed Technical Council held in Tallahassee, FL on November 6, 2000. The Seed Technical Council serves an advisory capacity to the Florida State seed control program and is comprised of Florida seedsmen, Florida Farm Bureau members, staff members of university agriculture departments, and Florida Department of Agriculture personnel.

Dr. Payne presented information about the use of AMS code designation numbers as specified in Section 201(a)(9) of the Federal Seed Act (FSA). Section 201(a)(9) requires that the name and address of the interstate shipper or the name and address of the company receiving the seed and the interstate shipper's AMS code designation be on the seed label. AMS code designations are assigned to interstate seed shippers by the SRTB. Common misconceptions and often repeated incorrect information about AMS code designations and their use were discussed. Dr. Payne explained the use of AMS code designations to identify interstate shippers when investigating potential FSA violations.

Dr. Payne talked about the rolls of both the state seed control program and the SRTB in the enforcement of the FSA. The benefit of effective FSA enforcement, resulting in accurately labeled seed being received by seed companies for resale within a state, was also discussed. Various actions resulting from FSA investigations, ranging from "no actions" to "penalty settlements," and the situation where each type of action would be appropriate were described. It was noted that Florida's seed control program cooperates with the SRTB in FSA enforcement.

MEETING OF OECD SEED SCHEMES ADVISORY COMMITTEE

Botanist Susan Maxon traveled to Vienna, Austria, to represent USDA at a January 15 and 16, 2001, meeting of the Organisation for Economic Co-operation and Development (OECD) Seed Schemes Advisory Committee. The Austrian Seed Institute hosted the meeting.

The purposes of the meeting were:

- to review and rewrite documents pertaining to a proposed OECD voluntary experiment on GM (genetically modified) seed testing (including laboratory testing and field production practices) to reflect the outcome of meetings held in Begnins, Switzerland, (on October 19 and 20, 2000), in order to report to the annual meeting of the OECD Seed Schemes to be held in June 2001; and
- to hear progress reports by the International Seed Trade Federation (FIS) and the International Seed Testing Association (ISTA).

Because it was not possible during the meeting to reach agreement concerning alternative wording for the paragraph on threshold levels for the experiment, the co-chair of the Advisory Committee, Leopold Girsch, requested that comments be submitted by the end of February to Jean-Marie Debois, OECD Secretariat. He suggested that an additional meeting of the Advisory Committee may be necessary in order to complete the report prior to the annual meeting of the OECD Seed Schemes in June 2001. Committee structure

also has to be decided. The OECD timetable for a decision on the experiment would be June 2001 for consideration of the report to the annual meeting of the OECD Seed Schemes, which would forward to the OECD Committee for Agriculture and in turn to the OECD Council for a decision in December 2001.

FIS representative Bernard LeBuanec reported that, in addition to the four countries (Argentina, Canada, Chile, and the United States) already committed to the International Seed Network Initiative experiment on field production, Hungary and South Africa are also interested in participating. Because of the lack of agreement from OECD to participate in the experiment, FIS will focus on the accumulation of technical information (such as isolation distances and previous cropping). FIS also will continue working with ISTA on laboratory procedures for detection of GM seeds in non-GM varieties. The ISTA Task Force for GM Seed Testing is working on testing methods, sampling, tolerances, reporting, and laboratory accreditation issues with the goal of adding a chapter to the ISTA Rules that would pertain to testing GM seed.

LABORATORY ACCREDITATION AUDITS

On behalf of the Standards Council of Canada (SCC), Seed Regulatory and Testing Branch (SRTB) Botanist Susan Maxon traveled to Ottawa, Canada to serve, from January 30 to February 1, 2001, as a technical assessor for the SCC's reaccreditation audit of the Central Seed Laboratory, Laboratory Services Division, Canadian Food Inspection Agency. The Food Laboratory and the Feed and Fertilizer Laboratory were audited by other members of the audit team.

Besides its SCC accreditation, the Central Seed Laboratory also is accredited by the International Seed Testing Association (ISTA), as is the SRTB. An ISTA evaluation team will audit the SRTB Testing Section this spring.

ASSOCIATION OF AMERICAN SEED CONTROL OFFICIALS MEETING

The second annual Association of American Seed Control Officials (AASCO) Mid-Year Meeting was held from February 4-6, 2001, in San Diego, CA. Kathleen Harvey and David Godfrey of the California Department of Food and Agriculture (CDFA) organized the meeting that was hosted by the CDFA.

Eighteen states and Canada answered the roll call on Sunday, February 4. Guests at the meeting included Dr. Lee Schweitzer of Oregon State University; Dr. Vincent Snyder of The Scotts Company, Marysville, OH; Sharon Davidson of Agri Seed Testing, representing the Society of Commercial Seed Technologists; and Doris Dixon of Monsanto Company, St. Louis, MO.

The following topics were discussed:

Antonio Castro-Escobar (MI) conducted the **Seed Count Uniform Labeling** session. Those in attendance were asked about their organization's enforcement policy on seed count labeling and what action states would be taking on "overages" and "underages" in comparison to labeled claims for seed count.

Mary Smith (AR) led a discussion about **Enforcement Issues**. This part of the program dealt mainly with farmer-to-farmer sales of seed and what types of enforcement actions states are taking in regard to these types of sales.

National Seed Health System Update: John Harri (IA) updated the group on the status of the National Seed Health System and its upcoming implementation.

Budget Problems for USDA's Seed Regulatory and Testing Branch (SRTB): Joe Garvey (PA) urged the membership to provide support for the SRTB. Malcolm Sarna (MD) circulated a list of senators and congressmen for the various states as contact people. AASCO President David Taylor (MT) asked Kathleen Harvey to draft a model letter that could be used by the states to send to USDA in support of the SRTB. Mention was made that perhaps the SRTB should be relocated with the new Grain Inspection Packers and Stockyards Administration (GIPSA) laboratory in Kansas City.

David Taylor led the discussion of **Interstate Shipper Labeling with AMS Numbers**. David cited examples of duplicate labeling of AMS code designation numbers and shipper names. He indicated that the "Uniform Labeling Taskforce" should look into this situation to develop a policy for AASCO.

Labeling of Carryover Seed with New Test Dates: Malcolm Sarna cited examples of questionable labeling practices using stickers showing new test dates for certain lots without reference to the original lot number or variety name.

Grow-out Testing on Ryegrass: Jim Cramer (OR) gave an excellent presentation on the issue of inadequate information provided by the traditional fluorescence tests conducted to distinguish annual and perennial ryegrasses and the suggested new grow-out procedures being used to distinguish between annual and perennial ryegrass. Following the presentation, AASCO adopted a resolution to support the grow-out test and labeling information indicating that a grow-out test was used to determine the percentage of perennial and annual ryegrass in the lot.

Larry Nees (IN) led the **New Seed Technologies Committee** discussion. Updates were given on the 'Starlink' corn issue with regard to corn crops in the midwest. Mark Ringler (IL) discussed the current situation involving genetically modified organisms (GMOs) in Illinois. Doris Dixon discussed the cotton ring test being conducted in cooperation with Monsanto Company.

Inspector Accreditation Program: David Taylor discussed the need for a possible accreditation program for seed inspectors, which he suggested be assigned to the Seed Inspectors Qualifications and Training Committee for further discussion.

Invasive Species Update: John Harri updated the members present on the developments involving the invasive species situation and indicated that the final impact of invasive species issues are yet to be realized.

Long Range Planning Committee Topics: David Svik (NE) summarized information he is trying to collect regarding the possible need for an executive secretary for AASCO and discussed the activities of GIPSA and GIPSA's involvement with the GMO issues.

Joe Garvey gave a presentation on **Conservation Seeds** and the concern of Pennsylvania for labeling and defining the terms being used.

The Tuesday session concluded with identifying the following "Action Items" developed at the Mid-Year Meeting:

1. Develop labeling language for seed count claims for insertion into AASCO's "Uniform Interpretations and Policies" section;
2. Appointment of a Focus Group to review the function and AASCO's relationship with the USDA SRTB;
3. The Uniform Labeling Taskforce will address the issue of requirements of shipper/labeler identification on seed shipments;
4. Recommended Uniform State Seed Law (RUSSL) Review Committee will review and develop a policy on carry-over seed labeling involving stick-on labels and lot identification;
5. Charge to the Seed Inspectors Qualifications and Training Committee the subject of inspector accreditation involving training, documentation, external audits, *etc.*;
6. Development and passage of a resolution in support of grow-out test information used for purity labeling of ryegrass seed;
7. Committee structures will be reviewed and potentially consolidated for efficiency.

The SRTB did not have a representative at the AASCO Mid-Year Meeting. We thank AASCO Secretary Larry Nees for providing the information in this report.

WHEAT COLEOPTILE LENGTH TEST

The Seed Regulatory and Testing Branch (SRTB) is developing a germination-based testing procedure to evaluate coleoptile length as a way to help differentiate wheat varieties. The 1999 Wheat Variety Comparison Chart produced by the Kansas Crop Improvement Association rates 32 varieties for a number of traits including coleoptile length. Varieties are rated 1 through 9, with varieties having the longest coleoptiles rated 1 and those with the shortest coleoptiles rated 9. Our study used one variety rated as a 2 and another variety rated as a 6.

One hundred seeds were planted on two moistened germination blotters in the bottom of 9½" x 6¼" x 1½" plastic germination boxes. The tops were put on the boxes and the boxes were placed in a 20°C germinator with 8 hours of light daily for two to three days. When the seeds began to germinate, the samples were moved to a growth chamber set at a temperature of 25°C with continuous high intensity light. It appeared that starting the germination procedure at 20°C resulted in faster, more uniform germination than when the test was started directly in the 25°C growth chamber, especially when freshly harvested seed was being tested.

The seedlings were observed daily and, after the shoot broke through the coleoptile, each seedling was removed from the germination box and the coleoptile length measured. The test can be completed in 5 to 6 days.

Seedlings of the variety rated as 2 for coleoptile length in the 1999 Wheat Variety Comparison Chart had an average coleoptile length of 2.7 cm and seedlings of the variety rated as 6 had an average coleoptile length of 1.7 cm. Variability of the average coleoptile

length among repeated tests of the same sample was very small. The 95 percent confidence intervals calculated for the average coleoptile length of each sample were also very small, indicating that the difference in coleoptile length of the two samples is valid.

The testing procedure used in this study is the same as that used in the wheat coleoptile color test. Thus, the same seedlings can be evaluated for both coleoptile color and length. We plan to test additional samples of other varieties to further define the parameters of the test.

QUESTIONS ABOUT *SETARIA PALLIDE-FUSCA*

Setaria pallide-fusca is a Federal noxious weed. In recent years, some taxonomists have classified this taxon either as a synonym of *Setaria pumila* or as a subspecies of *S. pumila*. Classification as a synonym is reflected in the "Uniform Classification of Weed and Crop Seeds" (Contribution No. 25 to the Handbook on Seed Testing, Association of Official Seed Analysts (AOSA)) and in the index to the "State Noxious-Weed Seed Requirements Recognized in the Administration of the Federal Seed Act" (March 2000). In the United States, we know *Setaria pumila* as the common weed yellow foxtail.

This synonymy has raised questions about whether *Setaria pumila*, yellow foxtail, is now a prohibited noxious weed under the Federal Seed Act. The answer is "No." The list of Federal noxious weeds that went into effect January 11, 2001, as section 201.16(b) of the Federal Seed Act Regulations was derived from regulations of the USDA Animal and Plant Health Inspection Service (APHIS). In discussions with APHIS representatives, we agree that *Setaria pallide-fusca* is a separate taxon from the common weed *Setaria pumila*, yellow foxtail. We are working with John Wiersema (USDA Agricultural Research Service and AOSA Nomenclature Committee) to clarify the nomenclature for GRIN (Germplasm Resources Information Network). Our next revision of the "State Noxious-Weed Seed Requirements Recognized in the Administration of the Federal Seed Act" will clarify that we consider *Setaria pallide-fusca* to be distinct from *Setaria pumila*, yellow foxtail.

FEDERAL SEED ACT CASE SETTLED

The following cases were settled administratively under the Federal Seed Act between October 1 and December 31, 2000. Under the administrative settlement procedure, the Seed Regulatory and Testing Branch and the firms agreed to settle the cases for the amount specified, with the firms neither admitting nor denying the charges:

- Lesco, Inc., Rocky River, OH, has paid \$1,575 for a case involving 3 seed shipments. The alleged violations, while not the same for all shipments, were false labeling of pure seed, other crop seed, test date, and noxious-weed seed; and failure to label the presence of noxious-weed seed. Seed regulatory officials in Maryland and Missouri cooperated in the initial sampling and inspection.

- Putnal Seed and Grain, Inc., Live Oak, FL, has paid \$1,500 for a case involving 4 seed shipments. The alleged violations, while not the same for all shipments, were false labeling as to pure seed, other crop, weed seed, inert matter, germination, and total germination and dormant seed percentage; and failure to test seed for germination within the prescribed period prior to interstate shipment. Seed regulatory officials in Alabama and North Carolina cooperated in the initial sampling and inspection.
- Turner Seed, Inc., LaVergne, TN, has paid \$3,750 for a case involving 11 seed shipments. The alleged violations, while not the same for all shipments, were mislabeling noxious-weed seeds and kind names; false purity and false germination labeling; failure to keep required records and label a kind name; and shipping seed containing noxious-weed seeds in excess of a state's limit. Seed regulatory officials in Kentucky and Virginia cooperated in the initial sampling and inspection.

FEDERAL SEED ACT CASE SETTLED

RYEGRASS FLUORESCENCE LIST

On August 16, 2000, the National Grass Variety Review Board (NGVRB) issued an update of the ryegrass fluorescence list.

The changes included the addition of 13 new perennial ryegrass variety fluorescence level descriptions: EP39, Pronto II; P22, LP22, Vail; MP5, CAS-MP5, MP55, PDQ; EP37, Magic II; WX2-64, Esquire; WVPB-XP-6, XP-6; LF-100, Continental; Lewis Seed PR #1, Lewis #1, WVPB-PR-Lewis #1, Vibrant; MB 49, Nexus; Pick F3, Fiesta 3; WVPB-PR-D-9, PRO Seeds D-9, PS-D-9; PR2, Smith PR2; and WVPB-XB-2, SB-2.

Also included in the NGVRB August 16, 2000, memorandum are the following nomenclature items: The experimental name Chatham perennial ryegrass has been accepted for certification as Chatham perennial ryegrass. Chatham has been given an Organisation for Economic Co-operation (OECD) synonym name of Catia. ISI-RUPR (Gator II) perennial ryegrass is accepted for certification as Gator II perennial ryegrass. JR-128 (Spyglass) perennial ryegrass has had the proposed name changed to JR-128 (Galaxy) perennial ryegrass. The experimental varieties JR-151 and JR-265 perennial ryegrasses have added, respectively, the proposed names Admire and A.S.A.P. JR-317 (Superfly) perennial ryegrass has had its proposed name changed to JR-317 (Extreme) perennial ryegrass. Pick Lp I-93 (Pleasure XL) has been accepted for certification as Pleasure XL perennial ryegrass. Lastly, WVPB-PR-Koos-95-9 perennial ryegrass has had a proposed name added, WVPB-PR-Koos-95-9 (Breeze II).

Perennial Ryegrass <u>Variety Name</u>	Percent Varietal Fluorescence	Perennial Ryegrass <u>Variety Name</u>	Percent Varietal Fluorescence
246	0.27%	Bedford	1.40%
2CB	1.97%	Bella	0.65%
856	0.87%	Blackhawk	1.17%
89-90	2.15%	Blazer III	1.18%
90-14 ¹	7.12%	Boardwalk	2.72%
96-KSOS-L-1-PR-WVPB-C-24	6.50%	Breeze	1.57%
A +	6.23%	Brightstar	1.79%
A + 96 ¹	0.92%	Brightstar II	2.24%
Academy	2.33%	Buccaneer	7.44%
Accent	0.56%	Buccaneer II	5.48%
Accolade	4.83%	CIS-MBH	1.27%
Accord	4.08%	C-21	6.28%
Achiever	0.93%	Caddieshack ¹	0.88%
Advent	0.14%	Caliente	0.74%
Affinity	0.77%	Calypso	1.29%
Agresso	2.00%	Calypso II	0.47%
All*Star	0.47%	Catalina	3.18%
Allaire II	1.15%	Cathedral	0.85%
APM	0.59%	Chaparral	1.62%
Aquarius	0.97%	Charger II	0.54%
Archer	1.51%	Charisma	2.39%
Ascend	3.09%	Chatham ³	2.11%
ASP410	0.18%	Citation III	0.96%
Assure	0.72%	Commander	1.02%

Cutter	1.65%
Dancer	0.78%
Dandy	2.00%
Delaware Dwarf	2.60%
Derby Supreme	2.85%
Dillon	4.14%
Divine	3.09%
DS95-201 (Enchanted) ¹	1.12%
Edge	1.73%
Elegance	1.51%
Elf	0.75%
Elite	4.84%
Envy	0.22%
EP37 (Magic II) ¹	1.36%
EP39 (Pronto II) ¹	1.75%
Equal	1.98%
Esquire ¹	3.10%
Evening Shade	1.17%
Excel ³	1.53%
Express	4.00%
Fiesta II ³	1.14%
Gator	0.88%
Gator II	2.50%
Gettysburg	2.74%
Goalkeeper	0.82%
Greenland	1.20%
Grimalda	2.00%
Headstart	2.09%
Imagine	1.31%
Jet	0.84%
Jiffie	6.06%
JR-128 (Galaxy) ¹	1.19%
JR-151 (Admire) ¹	2.37%
JR-265 (A.S.A.P.) ¹	1.42%
JR-317 (Extreme) ¹	1.32%
Laredo	0.53%
Legacy	0.37%
LF-100 (Continental) ¹	5.88%
Lindsay	1.72%
Line Drive	2.72%
Linn	5.00%
Lowgrow ³	1.31%
Lowgrow II	1.35%
LP22 (Vail) ¹	0.82%
LRF-94-C8 ¹	0.64%
LTP-3351 (Exacta) ¹	1.22%
LTP-95-1X4551 (Affirmed) ¹	2.59%
LTP-DLM (Churchill) ¹	2.93%
Lynx	4.19%
MB 48 (Wilmington) ¹	0.17%
MB 49 (Nexus) ¹	2.01%
Magic	1.21%
Majesty	1.59%
Manhattan II ³	0.65%

Manhattan 3 ³	0.88%
Mardi Gras	1.07%
Monterey	2.64%
Morningstar	0.87%
MP5 (PDQ) ¹	4.65%
Mulligan	1.86%
Navajo ³	0.37%
Newlinn	5.85%
NightHawk	1.39%
Nobility	7.53%
Nomad	1.03%
Nova	1.00%
Omega 3	0.73%
Omni	0.51%
Pageant	2.22%
Palmer	1.04%
Palmer II	1.51%
Palmer III	0.23%
Panther	1.18%
Passport ³	1.06%
Patriot II	0.42%
Pearl	1.86%
Pegasus	2.41%
Pennant	0.50%
Pennant II	1.63%
Phantom	2.19%
Pick F3 (Fiesta 3) ¹	1.02%
Pick Lp Q-93 ¹	6.44%
Pleasure	4.09%
Pleasure XL	1.11%
PR8820	0.79%
Prelude	1.72%
Prelude II	2.25%
Prelude III	0.59%
Prizm	0.71%
Protocol	4.30%
Protocol II ¹	5.28%
Quickstart	0.18%
R2	1.25%
Racer	1.23%
Regency	0.99%
Repell	0.33%
Repell II ³	1.56%
Repell III	0.80%
Reveille	2.00%
Riviera	0.58%
Riviera II	1.08%
Roadrunner	2.53%
Rodeo II	2.47%
Rosalin	3.26%
Saturn II	0.85%
Seville ³	0.33%
Sherwood	1.08%
Shining Star	0.10%

Sonata	1.20%
SR 4100 ³	0.37%
SR 4200	0.34%
Stallion Select	2.37%
Stallion Supreme	1.16%
Stardance	1.90%
Statesman	1.27%
Statesman II	8.42%
Sunshine	2.65%
Target	3.28%
Tonga	11.53%
TopGun	0.54%
Top Hat	0.77%
Topeka	2.34%
Tove	17.48%
Twister	3.85%
Vantage	2.19%
Vibrant ¹	4.30%
Vivid	1.24%
Wind Dance	1.17%
Wind Star	0.47%
Wizard ³	2.57%
WVPB-93-KFK ¹	3.84%
WVPB-PR-C-2, C-2 ¹	8.65%
WVPB-PR-Koos-95-9 (Breeze II) ¹	6.85%
WVPB-PR-RS-2 ¹	1.59%
WVPB-XB-2 ¹	26.71%
WVPB-XP-6 ¹	21.69%
Yorktown III	1.42%

Annual Ryegrass	Percent Varietal
<u>Variety Name</u>	<u>Fluorescence</u>
Florida 80	98.89%
Grazer	99.78%
Gulf	99.02%
Jackson	98.80%
Magnolia ²	---
Marshall	96.00%
Rio ¹	98.97%
Surrey	98.91%
TAM 90	98.45%

¹ Experimental Designation and/or Variety

² Exempt from varietal fluorescence testing calculations.

³ The NGVRB is now listing OECD synonym names. **These names are not acceptable for sale in the United States** and are included for informational purposes. The variety and its OECD synonym shown in italics are:

Chatham-*Catia*, Excel-*Romadera*,
Fiesta II-*Pickwick*, Lowgrow-*Lex86*,
Manhattan II-*Numan*, Manhattan 3-*Triman*,
Navajo-*Comanche*, Passport-*Romeo*,
Repel II-*Verdi*, Seville-*Leonardo*,
SR4100-*Athena*, and Wizard-*Sardinero*.

**Additions and Deletions
Of
Plant Variety Protection
Certificates**

PLANT VARIETY PROTECTION CERTIFICATES
(ISSUED OCTOBER 16, 2000, THROUGH FEBRUARY 28, 2001)

KIND VARIETY	APPLICANT	TITLE V (GEN.)	1994 PVPA	KIND VARIETY	APPLICANT	TITLE V (GEN.)	1994 PVPA
BEAN, FIELD Maverick Remington Winchester	NDSU Research Foundation Novartis Seeds, Inc. Novartis Seeds, Inc.	Y (3)	Y Y Y	PEA Bankit SOYBEAN	The Secretary of Agriculture (USDA) Novartis Seeds, Inc.		Y Y
BLUEGRASS, KENTUCKY Platini	DLF-TRIFOLIUM A/S - Dansk Plantefordling	Y (3)	Y	90B21	Pioneer Hi-Bred International, Inc. Pioneer Hi-Bred International, Inc.		Y
CORN, FIELD PH03D	Pioneer Hi-Bred International, Inc.		Y	90B93	Pioneer Hi-Bred International, Inc.		Y
PH04G	Pioneer Hi-Bred International, Inc.		Y	91B52	Pioneer Hi-Bred International, Inc.		Y
PH09B	Pioneer Hi-Bred International, Inc.		Y	93B53	Pioneer Hi-Bred International, Inc.		Y
PH0AA	Pioneer Hi-Bred International, Inc.		Y	95B33	Pioneer Hi-Bred International, Inc.		Y
PH0AV	Pioneer Hi-Bred International, Inc.		Y	A1553 A5547 CX496C	Asgrow Seed Company LLC Asgrow Seed Company LLC DEKALB Genetics Corporation		Y Y Y
PH0B4	Pioneer Hi-Bred International, Inc.		Y	Magellan	The Curators of the University of Missouri	Y (2)	Y
PH0DH	Pioneer Hi-Bred International, Inc.		Y	S22-C3	Novartis Seeds, Inc.		Y
PH0HR	Pioneer Hi-Bred International, Inc.		Y				
FESCUE, CHEWINGS Southport	Jonathan Green & Sons, Inc., Cascade International Seed Co.		Y				
PAPAYA UH Rainbow	Cornell Research Foundation, Inc.University of Hawaii at ManoaUnited States of America As Represented By The Secretary of Agriculture (USDA)	Y (1)	Y				
UH SunUP	Cornell Research Foundation, Inc.University of Hawaii at ManoaUnited States of America As Represented By		Y				

(*) No limit to the number of generations of certified seed beyond breeders seed.

PLANT VARIETY PROTECTION CERTIFICATES

(EXPIRED OCTOBER 16, 2000, THROUGH FEBRUARY 28, 2001)

KIND VARIETY	APPLICANT	TITLE V (GEN.)	1994 PVPA	KIND VARIETY	APPLICANT	TITLE V (GEN.)	1994 PVPA
ALFALFA WL 315	W-L Research, Inc.			FESCUE, CHEWINGS Lobi	Zelder B.V.		
BEAN, FIELD Harris	Nebraska Agricultural Experiment Station	Y (3)		FESCUE, HARD Reliant	AgriBioTech, Inc.		
BEAN, GARDEN Crossville	Harris Moran Seed Company			FESCUE, TALL Clemfine	AgriBioTech, Inc.		
Dandy	Novartis Seeds, Inc.			Jaguar	Pure-Seed Testing, Inc.		
Jumbo	Novartis Seeds, Inc.			ONION	Harris Moran Seed Company and Fresh Choice Produce, Inc.		
Lute	Royal Sluis B.V.			Omo M	Sunseeds Company		
Monaco	Holland-Select Research B.V.						
Tenderlake	Harris Moran Seed Company			Sweet Winter			
Trend	Royal Sluis B.V.			PEA			
BROCCOLI	Scattini Seeds, Inc.			Orcas	W. Brotherton Seed Company, Inc.		
Independence	L. Daehnfeldt, Inc.			Plus	Seminis Vegetable Seeds, Inc.		
BROMEGRASS, SWEET	Zaadteelt en Zaadhandel Hem B.V.			SugarAnn	Novartis Seeds, Inc.		
Deborah				SugarBon	Novartis Seeds, Inc.		
CALENDULA				SugarMel	Novartis Seeds, Inc.		
Orange Gitana				PEA, FIELD			
CLOVER, STRAWBERRY				Miranda	Cebeco Zaden B.V.	Y (3)	
Fresa	New Mexico Crop Improvement Association	Y (3)		RADISH			
CORN, FIELD LH39	Iowa State University Research Foundation			Red Baron	Novartis Seeds, Inc.		
CORN, POPCORN				Snow Belle	Alf Christianson Seed Company		
Big Red	Frank Holland	Y (2)					
COTTON				RICE	N. F. Davis Drier and Elevator, Inc.	Y (*)	
Coker 4360	SeedCo Corporation	Y (3)		California Belle			
Deltapine 62	Delta and Pine Land Company			SOYBEAN			
Deltapine SR-383	SeedCo Corporation			3580	Pioneer Hi-Bred International, Inc.		
Stoneville 302	Stoneville Pedigreed Seed Company, Inc.			A5308	Asgrow Seed Company		
EGGPLANT				A7372	Asgrow Seed Company		
Little Fingers	Harris Moran Seed Company			B152	Novartis Seeds, Inc.		
FESCUE, CHEWINGS				Bellatti-R-77-84	Louis Bellatti	Y (3)	
Contour	D.J. van der Have B.V.			BSR 302	Iowa Agriculture and Home Economics Experiment Station	Y (3)	
				GL 2250	Soybean Research Foundation, Inc.		

(*) No limit to the number of generations of certified seed beyond breeders seed.

PLANT VARIETY PROTECTION CERTIFICATES
(EXPIRED OCTOBER 16, 2000, THROUGH FEBRUARY 28, 2001)

KIND VARIETY	APPLICANT	TITLE V (GEN.)	1994 PVPA	KIND VARIETY	APPLICANT	TITLE V (GEN.)	1994 PVPA
SOYBEAN							
Hartz 930	Jacob Hartz Seed Company, Inc.	Y	(3)				
HP 4800	Advanta USA, Inc.						
L4106	Land O'Lakes, Inc.						
L4303	Land O'Lakes, Inc.						
L4503	Land O'Lakes, Inc.						
L4504	Land O'Lakes, Inc.						
Lakota	Iowa Agriculture and Home Economics Experiment Station	Y	(3)				
S18-84	Novartis Seeds, Inc.						
S40-44	Novartis Seeds, Inc.						
STEVIA							
P. J. Suzuki	F. K. Suzuki International, Inc.						
TOMATO							
Advantage	Harris Moran Seed Company						
Castle Red	Sunseeds Company						
Castlerock	Sunseeds Company						
Castlong ug	Sunseeds Company						
Cherokee	North Carolina Agricultural Experiment Station						
Moran 3053	Harris Moran Seed Company						
NC 50-7	North Carolina Agricultural Experiment Station						
WHEAT, COMMON							
A99ar	Causmex Corporation	Y	(2)				

(*) No limit to the number of generations of certified seed beyond breeders seed.

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